

CLAIMS

What is claimed is:

1. A hose comprising an inner barrier layer, a radially outer intermediate layer bonded directly to the inner barrier layer, a reinforcing layer, and a cover layer, wherein the barrier layer is formed of at least two resin layers and wherein the two resin layers are formed of two different materials and at least one of the resin layers is a vinyl resin.
2. A hose in accordance with claim 1 wherein the hose is further comprised of an elastomeric layer radially inward of the barrier layer.
3. A hose in accordance with claim 1 wherein the barrier layer is the radially innermost layer of the hose.
4. A hose in accordance with claim 1 wherein the barrier layer is formed of three resin layers.
5. A hose in accordance with claim 4 wherein the radially innermost resin layer and the radially outermost resin layer are formed of the same resin material.
6. A hose in accordance with claim 1 wherein the vinyl resin is selected from the group consisting of vinyl acetate (EVA), polyvinylalcohol (PVA), vinyl alcohol/ethylene copolymer (EVOH), polyvinylidene chloride (PVDC), polyvinyl chloride (PVC), vinyl chloride/vinylidene chloride copolymer, and vinylidene chloride/methylacrylate copolymer.
7. A hose in accordance with claim 1 wherein the non-vinyl resin barrier layer is formed of a material selected from the group consisting of polyolefin thermoplastic resins or polyamide thermoplastic resins.

8. A hose in accordance with claim 1 wherein the hose has a permeation rate of not greater than 0.0010 g/cm/day of R134 refrigerant.
9. A hose in accordance with claim 1 wherein the hose has a permeation rate of not greater than 0.0003 g/cm/day of R134 refrigerant.
10. A hose in accordance with claim 1 wherein each resin layer in the barrier layer has a radial thickness of 0.001 to 0.010 in (0.025 to 0.254 mm).
11. A hose in accordance with claim 1 wherein each resin layer in the barrier layer has a radial thickness of 0.001 to 0.005 in (0.025 to 0.127 mm).
12. A hose in accordance with claim 1 wherein the intermediate layer is formed of a material from the group consisting of chloroprene rubbers, nitrile rubbers, ethylene-propylene rubber, ethylene propylene diene rubber (EPDM), butyl rubbers (IIR, CIIR, BIIR), chlorosulfonated polyethylene rubber (CSM), ethylene-acrylic copolymer rubber (AEM), chlorinated polyethylene rubber (CPE), brominated isobutylene-paramethylstyrene (BIMS), thermoplastic elastomers, and thermoplastic vulcanizates.